CLAIMS

1. Electric heater for gaseous media with at least one support plate and at least one coil of a corrugated, electric resistance heating wire, which is wound continuously around the support plate and whose turns are held by bend-offs of the heating wire on the longitudinal edges of the support plate, wherein the heating wire is positioned in such a way that it only contacts longitudinal narrow sides and/or edges of the longitudinal narrow sides of the support plate and wherein the heating wire, in the vicinity of a convex bend-off , is guided over the longitudinal narrow sides of the support plate, a bending angle ($\alpha$) between areas of the heating wire following onto the bend-off on both sides exceeding 40ø.

2. Electric heater according to claim 1, wherein the bending angle ($\alpha$) exceeds 60°.

3. Electric heater according to claim 1, wherein, in addition to the straight flanks placed between wave peaks and corresponding wave troughs , the heating wire has further straight portions , which have a greater length than the flanks.

4. Electric heater according to claim 3, wherein the straight portions are at least twice as long as the flanks.

5. Electric heater according to claim 3, wherein the straight portions extend substantially tangentially to the turns of the coil.

6. Electric heater according to claim 1, wherein, in the case of using a plurality of support plates, in an area between the support plates, the heating wire has a regular wave pattern of wave peaks and wave troughs.

7. Electric heater according to claim 6, wherein, in the transition areas between the straight portions and the corrugated portions, the heating wire is held on the support plates.

8. Electric heater according to claim 7, wherein, between straight portions engaging on facing longitudinal narrow sides, the heating wire has at least one further wave trough, whose apex engages on an outside of the support plate.

9. Electric heater according to claim 6, wherein, between straight portions engaging on facing longitudinal narrow sides, the heating wire has two wave troughs and wherein the heating wire has a substantially M-shaped configuration in a portion between the same.

10. Electric heater according to claim 1, wherein it has a double or multiple coil in the form of at least two, parallel wound heating wires.

11. Electric heater according to claim 1, wherein when using several support plates a temperature or thermal element is provided in an area between the support plates.

12. Electric heater according to claim 1, wherein the support plate has grooves in its longitudinal narrow sides for the insertion of windings of the heating wire.

13. Electric heater according to claim 1, wherein the support plate has openings in the vicinity of the helix.

14. Electric heater according to claim 1, wherein the heating wire has a PTC characteristic.

15. Electric heater according to claim 1, wherein the number of heating wire windings per length unit varies along the support plate.

16. Electric heater according to claim 1, wherein an electrical resistance of the heater can be adapted by means of the extent of a depth of the wave troughs or height of the wave peaks of the heating wire.

17. Electric heater according to claim 1, wherein a return conductor is guided between the support plates when a plurality of the latter is used.

18. Electric heater according to claim 11, wherein two connection sides for the thermal element are formed by the return conductor.

19. Electric heater according to claim 1, wherein a return line is passed over a casing of the heater.

20. Electric heater according to claim 1, wherein the at least one support plate in the flow direction to guide walls of a casing forms an angle not equal to 0ø and smaller than 90°.

LIST OF REFERENCE NUMERALS

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|---|---|
| 1 | Electric heater |
| 2 | Casing |
| 3a, 3b | Support plate |
| 4a, 4b | Opening (in 2) |
| 5, 5a, 5b | Heating wire |
| 6, 6' | Contact part |
| 7 | Link plate (of 6) |
| 8 | Groove (of 3a, 3b) |
| 9 | Terminal |
| 10, 10' | Opening |
| 11 | Corrugated heating wire portion |
| 11a | Wave peaks |
| 11b | Wave troughs |
| 11c | Flanks |
| 12 | Bend-off |
| 13 | Straight heating wire portion |
| 14 | Outside (of 3a, 3b) |
| 16 | Bend-off |
| 17 | Bend-off (wave trough) |
| 18 | Straight portion (of 5) |
| 19 | Superelevated wave peak |
| 20 | Longitudinal narrow side (of 3a, 3b) |
| 20a | Edges (of 20) |
| 21 | Fuse |
| 22 | Temperature sensor |
| 23 | Connecting conductor |
| 24 | Return conductor |
| $\alpha$ | Bending angle |
| P | Gas flow |